

## PATENT COOPERATION TREATY

PCT

NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
Administrative Instructions, Section 422)

From the INTERNATIONAL BUREAU

To:

BAIN, Robert, M.  
Senniger, Powers, Leavitt & Roedel  
One Metropolitan Square  
16th Floor  
St. Louis, MI 63102  
ETATS-UNIS D'AMERIQUE

Date of mailing (day/month/year) 02 April 2002 (02.04.02)	IMPORTANT NOTIFICATION
Applicant's or agent's file reference 11371	
International application No. PCT/US00/16324	
	International filing date (day/month/year) 12 July 2000 (12.07.00)

## 1. The following indications appeared on record concerning:

☒ the applicant    ☐ the inventor    ☐ the agent    ☐ the common representative

Name and Address ENTHONE-OMI INC. 350 Frontage Road West Haven, CT 06516 United States of America	State of Nationality US	State of Residence US
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	

## 2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:

☐ the person    ☒ the name    ☐ the address    ☐ the nationality    ☐ the residence

Name and Address ENTHONE INC. 350 Frontage Road West Haven, CT 06516 United States of America	State of Nationality US	State of Residence US
	Telephone No.	
	Facsimile No.	
	Teleprinter No.	

## 3. Further observations, if necessary:

## 4. A copy of this notification has been sent to:

<input checked="" type="checkbox"/> the receiving Office	<input type="checkbox"/> the designated Offices concerned
<input type="checkbox"/> the International Searching Authority	<input checked="" type="checkbox"/> the elected Offices concerned
<input checked="" type="checkbox"/> the International Preliminary Examining Authority	<input type="checkbox"/> other:

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No.: (41-22) 740.14.35	Authorized officer  Athina NICKITAS-ETIENNE  Telephone No.: (41-22) 338.83.38
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## PATENT COOPERATION TREATY

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NOTIFICATION OF THE RECORDING  
OF A CHANGE(PCT Rule 92bis.1 and  
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From the INTERNATIONAL BUREAU

To:

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One Metropolitan Square  
16th Floor  
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Date of mailing (day/month/year) 02 April 2002 (02.04.02)	<b>IMPORTANT NOTIFICATION</b>
Applicant's or agent's file reference 11371	
International application No. PCT/US00/16324	International filing date (day/month/year) 12 July 2000 (12.07.00)

1. The following indications appeared on record concerning:		
<input type="checkbox"/> the applicant	<input type="checkbox"/> the inventor	<input checked="" type="checkbox"/> the agent
<input type="checkbox"/> the common representative		
Name and Address MUELLER, Richard, P. 34382 Harper Avenue Clinton Township, MI 48035 United States of America	State of Nationality	State of Residence
	Telephone No. (810) 790-4082	
	Facsimile No. (810) 790-4083	
	Teleprinter No.	
2. The International Bureau hereby notifies the applicant that the following change has been recorded concerning:		
<input checked="" type="checkbox"/> the person	<input type="checkbox"/> the name	<input type="checkbox"/> the address
<input type="checkbox"/> the nationality	<input type="checkbox"/> the residence	
Name and Address BAIN, Robert, M. Senniger, Powers, Leavitt & Roedel One Metropolitan Square 16th Floor St. Louis, MI 63102 United States of America	State of Nationality	State of Residence
	Telephone No. 314 231 5400	
	Facsimile No. 314 231 4342	
	Teleprinter No.	
3. Further observations, if necessary:		
4. A copy of this notification has been sent to:		
<input checked="" type="checkbox"/> the receiving Office	<input type="checkbox"/> the designated Offices concerned	
<input type="checkbox"/> the International Searching Authority	<input checked="" type="checkbox"/> the elected Offices concerned	
<input checked="" type="checkbox"/> the International Preliminary Examining Authority	<input type="checkbox"/> other:	

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APR 28 2002  
TC 1700

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. (41.22) 740 14 35	Authorized officer Athina NICKITAS-ETIENNE Telephone No. (41.22) 328 83 38
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09/673832

PCT/US00/16324

## PATENT COOPERATION TREATY

PCT

## NOTIFICATION OF ELECTION

(PCT Rule 61.2)

From the INTERNATIONAL BUREAU

To:

Commissioner  
US Department of Commerce  
United States Patent and Trademark  
Office, PCT  
2011 South Clark Place Room  
CP2/5C24  
Arlington, VA 22202  
ETATS-UNIS D'AMERIQUE  
in its capacity as elected Office

Date of mailing (day/month/year) 05 April 2001 (05.04.01)	
International application No. PCT/US00/16324	Applicant's or agent's file reference 11371
International filing date (day/month/year) 12 July 2000 (12.07.00)	Priority date (day/month/year) 16 July 1999 (16.07.99)
Applicant HARTOGS, Matty, J. et al	

1. The designated Office is hereby notified of its election made:

☒ in the demand filed with the International Preliminary Examining Authority on:  
09 February 2001 (09.02.01)

☐ in a notice effecting later election filed with the International Bureau on:  
\_\_\_\_\_

2. The election ☒ was  
☐ was not

made before the expiration of 19 months from the priority date or, where Rule 32 applies, within the time limit under Rule 32.2(b).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No.: (41-22) 740.14.35	Authorized officer Jean-Marie McAdams Telephone No.: (41-22) 338.83.38
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## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US00/16324**A. CLASSIFICATION OF SUBJECT MATTER**

IPC(7) :B05D 1/18, 3/10; C08J 7/04, 5/00; B29C 45:00

US CL :Please See Extra Sheet.

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 427/98, 306, 307, 322, 443.1; 264/129, 328.1, 330, 337, 338, 331.11

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  
NONEElectronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
Please See Extra Sheet.**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X ---	GB 979,779 A (SCHNEBLE et al.) 06 January 1965, pgs. 2-3.	1 ---
Y		2-3
Y	US 4,601,783 A (KRULIK) 22 July 1986, abstract, col. 7, line 62- col. 8, line 18.	2
Y	US 4,281,038 A (AMBROS et al.) 28 July 1981, col. 4, lines 14-58.	3
A	US 4,767,665 A (SEEGER) 30 August 1988.	
A	US 5,739,193 A (WALPITA et al.) 14 April 1998.	



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:	"T" later document publishes' after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance, the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier document published on or after the international filing date	"Y" document of particular relevance, the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation on other special reason (as specified)	"Z" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

23 AUGUST 2000

Date of mailing of the international search report

19 SEP 2000

Name and mailing address of the ISA/US  
Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

MICHAEL BARR

Telephone No. (703) 308-0661

DEBORAH THOMAS  
PARALEGAL SPECIALIST

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US00-16324

## Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☒ Claims Nos.: 4-8  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

### Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.  
☐ No protest accompanied the payment of additional search fees.

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US00/16324

## A. CLASSIFICATION OF SUBJECT MATTER:

US CL :

427/98, 306, 307, 322, 443.1: 264/129, 328.1, 330, 337, 338, 331.11

## B. FIELDS SEARCHED

Electronic data bases consulted (Name of data base and where practicable terms used):

EAST: USPAT, EPO, JPO, DWPI

search terms: electroless, plastic, polymer, catalyst, particles, acid, alkaline, activate, plating, organic, injection molding

## PATENT COOPERATION TREATY

## PCT

REC'D 14 NOV 2001

WIPO

PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

91673832

Applicant's or agent's file reference 11371	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US00/16324	International filing date (day/month/year) 12 July 2000 (12.07.2000)	Priority date (day/month/year) 16 July 1999 (16.07.1999)
International Patent Classification (IPC) or national classification and IPC IPC(7): B05D 1/18, 1/36, 3/02, 3/10 and US Cl.: 427/238, 304, 305, 404, 405, 436, 437, 438, 443.1, 376.6, 376.7, 376.8, 383.1, 383.3, 383.5, 383.7		
Applicant ENTHONE-OMI INC.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 5 sheets, including this cover sheet.
- ☐ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of \_\_\_ sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☒ Non-establishment of report with regard to novelty, inventive step and industrial applicability
- IV ☒ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 09 February 2001 (09.02.2001)	Date of completion of this report 25 September 2001
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703)305-3230	Authorized officer Michael Barr Telephone No. 703-308-0661 DEBORAH THOMAS LEGAL SPECIALIST

Form PCT/IPEA/409 (cover sheet)(July 1998)

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/16324

## I. Basis of the report

1. With regard to the elements of the international application:\*

☒ the international application as originally filed.

☒ the description:

pages 1-7 as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of \_\_\_\_\_

☒ the claims:

pages 8 and 9 as originally filed

pages NONE, as amended (together with any statement) under Article 19

pages NONE, filed with the demand

pages NONE, filed with the letter of \_\_\_\_\_

☒ the drawings:

pages NONE as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of \_\_\_\_\_

☐ the sequence listing part of the description:

pages NONE as originally filed

pages NONE, filed with the demand

pages NONE, filed with the letter of \_\_\_\_\_

2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).

☐ the language of publication of the international application (under Rule 48.3(b)).

☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

☐ contained in the international application in printed form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. ☒ The amendments have resulted in the cancellation of:

☒ the description, pages NONE

☒ the claims, Nos. NONE

☒ the drawings, sheets/fig NONE

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.



# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/16324

## III. Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1. The question whether the claimed invention appears to be novel, to involve an inventive step (to be non-obvious), or to be industrially applicable have not been and will not be examined in respect of:

☐ the entire international application,

☒ claims Nos. 4-8

because:

☐ the said international application, or the said claim Nos. \_\_\_\_\_ relate to the following subject matter which does not require international preliminary examination (*specify*):

☒ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. 4-8 are so unclear that no meaningful opinion could be formed (*specify*):

Claims 4-8 are improper multiple dependent claims under PCT Rule 6.4(a).

☐ the claims, or said claims Nos. \_\_\_\_\_ are so inadequately supported by the description that no meaningful opinion could be formed.

☒ no international search report has been established for said claims Nos. 4-8

2. A meaningful international preliminary examination cannot be carried out due to the failure of the nucleotide and/or amino acid sequence listing to comply with the standard provided for in Annex C of the Administrative Instructions:

☐ the written form has not been furnished or does not comply with the standard.

☐ the computer readable form has not been furnished or does not comply with the standard.

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US00/16324

IV. Lack of unity of invention

1. In response to the invitation to restrict or pay additional fees the applicant has:

- ☐ restricted the claims.
- ☐ paid additional fees.
- ☐ paid additional fees under protest.
- ☐ neither restricted nor paid additional fees.

2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose, according to Rule 68.1, not to invite the applicant to restrict or pay additional fees.

3. This Authority considers that the requirement of unity of invention is accordance with Rules 13.1, 13.2 and 13.3 is

- ☒ complied with.
- ☐ not complied with for the following reasons:

4. Consequently, the following parts of the international application were the subject of international preliminary examination in establishing this report:

- ☐ all parts.
- ☐ the parts relating to claims Nos. \_\_\_\_\_

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.  
PCT/US00/16324

## V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. STATEMENT

Novelty (N)	Claims <u>2-3</u>	YES
	Claims <u>1</u>	NO
Inventive Step (IS)	Claims <u>NONE</u>	YES
	Claims <u>1-3</u>	NO
Industrial Applicability (IA)	Claims <u>1-3</u>	YES
	Claims <u>NONE</u>	NO

### 2. CITATIONS AND EXPLANATIONS

Claim 1 lacks novelty under PCT Article 33(2) as being anticipated by GB 979,779 by Schneble et al. ("Schneble").

Schneble teaches mixing a resin (plastic) with particles of copper oxide (catalyst) and then milling the mixture, which indicates granulation of the resin and particles, then molding the resin and copper oxide into a shaped body, such as a circuit board, then removing a surface layer of the resin to expose the copper oxide, then activating the copper oxide with an acid, and then electrolessly plating the shaped body with an electroless plating bath (Pg. 2-Pg. 3).

Claim 2 lacks an inventive step under PCT Article 33(3) as being obvious over Schneble in view of US 4,601,783 by Krulik ("Kruklik").

Schneble is applied here for the same reasons as given above. Schneble fails to teach that the resin is removed by an alkaline solution. Kruklik teaches etching the surface of a circuit board made of a resin, where the resin is etched by exposure to an alkaline solution (Abstract; Col. 7, line 62-Col. 8, line 18). It would have been obvious to one skilled in the art to use an alkaline solution to remove the resin from the shaped body of Schneble, with the expectation providing the desired resin removal, since it is shown by Kruklik that alkaline solutions are known for resin etching of circuit boards.

Claim 3 lacks an inventive step under PCT Article 33(3) as being obvious over Schneble in view of US 4,281,038 by Ambros et al. ("Ambros").

Schneble is applied here for the same reasons as given above. Schneble fails to teach that the circuit board is formed by injection molding. Ambros teaches forming a circuit board by injection molding of resin and catalyst granulates (Col. 4, lines 14-48). It would have been obvious to one skilled in the art to form the circuit board of Schneble by injection molding of the resin and catalyst granulates, since it is shown by Ambros that injection molding is a known and conventional method of forming circuit boards from granulates of resin mixed with catalyst, as in Schneble.

Claims 2-3 meet the criteria set out in PCT Article 33(2), because the prior art does not specifically teach the particular steps of alkaline removal of the plastic and injection molding in conjunction with the particularly claimed process of Claim 1.

Claims 1-3 meet the criteria set out in PCT Article 33(4), because the claimed process has use in the electroless plating industry.

----- NEW CITATIONS -----